US 20210230551A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2021/0230551 A1**

O'Heeron et al. (43) **Pub. Date: Jul. 29, 2021**

(54) **ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION**

(71) Applicant: **SpinalCyte, LLC**, Houston, TX (US)

(72) Inventors: **Pete O'Heeron**, Houston, TX (US); **Thomas Ichim**, San Diego, CA (US)

(21) Appl. No.: **17/052,854**

(22) PCT Filed: **May 3, 2019**

(86) PCT No.: **PCT/US2019/030577**

§ 371 (c)(1),
(2) Date: **Nov. 4, 2020**

Related U.S. Application Data

(60) Provisional application No. 62/666,816, filed on May 4, 2018.

Publication Classification

(51) **Int. Cl.**

C12N 5/077	(2006.01)
A61K 35/33	(2006.01)
A61K 45/06	(2006.01)

(52) **U.S. Cl.**

CPC ***C12N 5/0656*** (2013.01); ***A61K 35/33*** (2013.01); *C12N 2500/84* (2013.01); *C12N 2501/065* (2013.01); ***A61K 45/06*** (2013.01)

(57) **ABSTRACT**

Embodiments of the disclosure include methods and compositions related to preparation of fibroblasts for use of treatment and prevention of a degenerative disc in an individual. In particular cases, fibroblasts are subject to de-differentiation that results in enhancement of their therapeutic activity and such methods include exposure of the fibroblasts to one or more agents and/or conditions.